

CLAIMS

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is as follows:

- 1 1. A fiber optic sensor comprising
2 a body of crystalline material,
3 a fiber optic element having an end surface,
4 said fiber optic element being bonded to said body
5 of crystalline material, and
6 a reflective surface positioned by said body of
7 crystalline material at a location separated from
8 said end surface of said fiber optic element to form
9 a gap.
- 1 2. A fiber optic sensor as recited in claim 1,
2 wherein a coefficient of thermal expansion of said
3 crystalline material is matched to a coefficient of
4 thermal expansion of said fiber optic element.
- 1 3. A fiber optic sensor as recited in claim 1,
2 wherein the difference between a coefficient of
3 thermal expansion of said crystalline material and a
4 coefficient of thermal expansion of said fiber optic
5 element is maximized.
- 1 4. A fiber optic sensor as recited in claim 1,
2 wherein said body of crystalline material is in the
3 form of a tube.

1 5. A fiber optic sensor as recited in claim 1,
2 further including a diaphragm providing said
3 reflective surface.

1 6. A fiber optic sensor as recited in claim 1,
2 wherein said body of crystalline material is a
3 substantially planar substrate having a groove in a
4 surface thereof.

1 7. A fiber optic sensor as recited in claim 1,
2 wherein said crystalline material is monocrystalline
3 material.

1 8. A telemetry system including a fiber optic
2 sensor, said fiber optic sensor comprising
3 a body of crystalline material,
4 a fiber optic element having an end surface,
5 said fiber optic element being bonded to said body
6 of crystalline material, and
7 a reflective surface positioned by said body of
8 crystalline material at a location separated from
9 said end surface of said fiber optic element to form
10 a gap.

1 9. A fiber optic sensor as recited in claim 8,
2 wherein a coefficient of thermal expansion of said
3 crystalline material is matched to a coefficient of
4 thermal expansion of said fiber optic element.

1 10. A fiber optic sensor as recited in claim 8,
2 wherein the difference between a coefficient of
3 thermal expansion of said crystalline material and a
4 coefficient of thermal expansion of said fiber optic
5 element is maximized.

6 11. A fiber optic sensor as recited in claim 8,
7 wherein said body of crystalline material is in the
8 form of a tube.

9 12. A fiber optic sensor as recited in claim 8,
10 further including a diaphragm providing said
11 reflective surface.

1 13. A fiber optic sensor as recited in claim 8,
2 wherein said body of crystalline material is a
3 substantially planar substrate having a groove in a
4 surface thereof.

1 14. A fiber optic sensor as recited in claim 8,
2 wherein said crystalline material is monocrystalline
3 material.